

REMARKS

The Office Action dated May 17, 2005 rejected applicant's statement of traverse in relation to the former Restriction Requirement of February 22, 2005, and made the restriction final. Original claims 7-13 were withdrawn from consideration by the first Restriction Requirement.

Claim 4 was then further restricted from pending claims 1-6 on the basis that claim 4 recites a photoresist layer instead of a hard mask layer in the formation of the second structures. (Compare original claim 3).

The title was objected to as being non-descriptive.

Claim 3 was rejected under 35 U.S.C. § 112, second paragraph as being indefinite, but the subject matter of original claim 6 was deemed allowable.

Claims 1, 2, 5 and 6 were rejected under 35 U.S.C. § 103 as being unpatentable over Horio (U.S. Patent 6,368,957) in view of Abbot et al. (U.S. Patent 6,723,597).

In response, applicant has canceled claims 3 in favor of new independent claim 14, canceled claims 7-13 in view of the Restriction Requirement made final, amended claims 1, 2, 4 and 5, and added new claims 14-27. Accordingly, claims 1-2, 4-6, and 14-27 are pending for consideration.

Applicant has amended the title along the lines suggested in the Office Action.

In view of the cancellation of original claim 3 the 35 U.S.C. § 112, second paragraph rejection is moot.

Applicants respectfully submit that further restriction of claim 4 from the pending claims is improper. Alternative use of a photoresist pattern instead of a hard mask pattern in the formation of the second structures recited in claim 1 is not precluded by the written description in relation to Figures 3A-3H which are drawn to the use of hard mask patterns. Subsequent embodiments and description in the

specification suggest use of a photoresist layer for similar purposes.

Indeed, the Horio document identified by the Office Action as a primary reference uses a photoresist layer (222) to pattern a second BPSG layer (210b) in one of the embodiments relied upon in the Office Action (Figs 4-9 of Horio) to reject pending claims 1, 2, 5, and 6. Having concluded that use of a photoresist layer is sufficient to reject independent claim 1, which generically recites the formation of the second substrates, the Office Action cannot then turn around and restrict dependent claim 4 from independent claim 1 on the basis that it recites a similar use of a photoresist pattern. Accordingly, claim 4 is not canceled, but rather, applicant traverses this restriction and requests its withdrawal.

Applicant has amended claims 1, 2, 5, and 6 to better highlight the inventive subject matter. Applicant notes that amended independent claim 1 recites:

- forming first spacers on sidewalls of first structures, wherein each one of the first structures comprises; an insulation film pattern formed on a conductive film pattern formed on a semiconductor substrate, wherein the conductive film pattern is formed with a thickness at least four times that of the insulation film pattern;
- forming a first insulation film to cover the first structures including the first spacers and regions between the first structures;
- forming first insulation film patterns filling regions between adjacent ones of the first structures by planarizing the first insulation film until upper faces of the first structures are exposed;
- forming second structures on the first insulation film patterns and on the first structures, wherein each one of the second structures is substantially aligned over at least one of the first structures, such that the second structures expose first portions of the first insulation film patterns, wherein each one of the exposed first portions is spaced from adjacent ones of the first structures by a distance ranging from between about 5 to about 35 percent of a distance separating the adjacent ones of the first structures; and
- forming openings to expose portions of the semiconductor substrate by etching the first portions of the first insulation film patterns using the second structures and the first spacers as an etching mask.

In this regard, Horio fails to teach or suggest the recited first structures formed from an insulation film pattern formed on a conductive film pattern. Rather, Horio show only a polysilicon gate pattern 104 formed on a thin gate oxide film (102).

Within this context, there is also no showing of a lower conductive film pattern being formed with a thickness four times that of the upper insulation film pattern. This feature is not some trivial design choice (i.e., subject to dismissive consideration by the Office Action). As explained on pages 6 and 7 of the specification, this ratio defines in part the aspect ratio of the regions separating the first structures (e.g., gate electrode structures).

Horio also fails to teach or suggest the substantially aligned relationship between respective the first and second structures. Rather, the preparation hole (120) used in Horio, if anything, is aligned with the unspecified and undefined region separating the gate electrodes shown in Horio.

There is absolutely nothing in Horio to suggest the recited relationships between second structures, the exposed first portions of the first insulation film patterns, the distance separating adjacent first structures, and particularly, the resulting "about 5 to about 35 percent" relationship.

For at least reasons, applicant requests reconsideration and allowance of claims 1, 2, and 4-6, as amended, over the art of record.

Newly added independent claim 14 replaces canceled dependent claim 3, the subject matter of which was deemed allowable. New claims 15-19 depend from independent claim 14. Applicant requests allowance of these claims for at least the reasons expressed in the Office Action in relation to original claim 3, as well as the reasons set forth above in relation to the content of the art of record in the context of amended claim 1.

Newly added independent claim 20 recites a plurality of gate electrode structures having an insulation film pattern on conductive film pattern on gate oxide

film pattern structure. In new claim 20, the second structures are substantially edge aligned with at least one of the first structures. For at least these additional reasons, as well as those set forth above in relation to the content of the art of record and amended claim 1, independent claim 20 and its dependencies 21-27 are allowable over the art of record.

Additionally, new dependent claim 21 recites the use of hard mask patterns in the formation of the second structures and is deemed additionally allowable for at least reason expressed in the Office Action relative to original claim 3. Dependent claims 22-27 further depend from claim 22.


In sum, applicant requests consideration and allowance of the pending claims. In the event that there are outstanding matters remaining in the present application, the Examiner is invited to contact the undersigned attorney at (571) 283-0720.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,
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By: _____


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